TIMBER DEPLETION AND THE ANSWER

A SUMMARY OF THE REPORT ON TIMBER DEPLETION AND RELATED SUBJECTS PREPARED IN RESPONSE TO SENATE RESOLUTION 311

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TIMBER DEPLETION AND THE ANSWER.

THE MAIN FACTS AS TO TIMBER DEPLETION IN THE UNITED STATES.

THE FOREST RESOURCES OF THE UNITED STATES—YESTERDAY AND TO-DAY.

The original forests of the United States are estimated to have covered 822 million acres and to have contained 5,200 billion board feet of timber. Over two-thirds of this area has been culled, cut-over, or burned. There are left to-day about 137 million acres of virgin timber, 112 million acres of culled and second-growth timber large enough for sawing, 133 million acres partially stocked with smaller growth, and 81 million acres of devastated and practically waste land. We have 463 million acres of forest land of all sorts which contains about 2,214 billion feet of timber of merchantable sizes. Three-fifths of the timber originally in the United States is gone.

THE RATE AT WHICH OUR FORESTS ARE BEING USED UP.

The cutting and loss of merchantable timber consume about 56 billion board feet yearly. About 40 billion feet of this amount is cut from the virgin forests still left, the rest from second growth. We are even cutting into pulpwood, acid wood, and fuel 14 billion cubic feet per year of material too small for sawing. All told we are taking about 26 billion cubic feet of material out of our forests every year and growing about 6 billion feet in them. We are cutting more of every class of timber than we are growing. We are even using up the trees too small for the sawmill but upon which our future lumber supply depends three and one-half times as fast as they are being produced.

Our annual wood bill includes 40 billion feet of lumber, 87 million hewed railroad ties, nearly 5½ million cords of pulpwood, a third of which is imported, and 110 million cords of fuel. This use of wood can not be appreciably reduced without serious injury to the agriculture, the home building, and the manufactures of the United States. The pressure of the war brought our per capita consumption of timber down to 300 board feet yearly and the country has suffered from it in the shortage of dwellings and the curtailed output of many industries. Even with large allowances for the substitution of other materials, the United States will require at least 35 billion feet of lumber yearly, aside from enormous quantities of wood pulp and other products of the forest. We can not cut our per

capita use of lumber to one-half or one-third the present amount—to the level of European countries where lumber is an imported luxury—if our resources are to be developed and our industrial supremacy retained. And we must ourselves grow the great bulk of the wood we need, for large increases in lumber imports are not possible at reasonable prices.

THE TIMBER LEFT IS NOT IN THE RIGHT PLACE.

The crux of timber depletion is the exhaustion, or partial exhaustion, of the forests most available to the great bulk of our population, agriculture, and manufactures. One timbered region after another in the Eastern States has been cut out. Less than 5 per cent of the virgin forests of New England and but 12 per cent of her original stand of timber are left. New York, the leading State in lumber production in 1850, now manufactures only 30 board feet per capita yearly, or not more than a tenth of the requirements of her own population and industries. Pennsylvania was the leading lumber manufacturing State in 1860. She now cuts less than the amount consumed in the Pittsburgh district alone.

The original pine forests of the Lake States, estimated at 350 billion feet, are now reduced to less than 8 billion. In 1892 the sawmills in the region bordering the Great Lakes cut 9 billion board feet of lumber and largely supplied the softwood markets of the Prairie and Central States and eastward to New England. To-day their yearly cut is a single billion. These four densely populated regions, stretching from the Atlantic to the Prairies, which formerly were lumber exporters and still contain enormous areas of forest land, are now largely dependent upon timber grown and manufactured elsewhere and are becoming increasingly dependent upon timber which must be shipped the width of the continent.

The bulk of the building and structural timbers used in the Eastern and Central States during the last 20 years was grown in the pine forests of the South. In 1909 the southern mills cut 16 billion feet of pine and dominated the larger markets as completely as the northern pine did before. The virgin pine forests of the South are estimated to have contained 650 billion feet of timber; they now contain 139 billion feet aside from considerable quantities of second growth. The cut of southern pine is falling off and within another decade promises to exceed by little, if at all, the requirements of the Southern States themselves.

The migration of the hardwood lumber industry has followed much the same course, although the regional lines are less distinct. The commercial cut of hardwoods in the Middle States is almost a thing of the past. It has fallen off materially in the Lake States and is now decreasing in the Southern Appalachians. The principal

reserve of hardwoods is in the Southern Mississippi Valley, and even here it is doubtful if the cut of hardwood lumber can be materially increased for any length of time. The scarcity of high-grade oak, poplar, ash, hickory, walnut, and other standard hardwoods is now confronting many American industries with a critical condition.

Since 1909, the United States has ceased to be self-supporting in newsprint paper. There are large quantities of pulp timber in the Western States and in Alaska, but industrial and transportation conditions prior to the war largely rendered them unavailable to the user of paper. The depletion of pulpwoods in the Eastern and Northern States is reflected to-day in the importation of two-thirds of our newsprint or newsprint materials from Canada.

A similar situation prevails in the naval-stores industry. It has moved from State to State throughout the southern pine belt, exhausting the resources of each in turn. In 1919 the production of turpentine and rosin had fallen off 50 per cent. Within 10 years the United States will lose its commanding position in the world's markets for these products. As yet the vast resources of the western coniferous forests have not been touched because they have not been commercially available.

One-half of the timber remaining in the continental United States is in three States bordering the Pacific Ocean. Sixty-one per cent of it lies west of the Great Plains. Since 1894 western timber has been filling gaps in the Eastern and Middle Western markets. Within the past year it has assumed a dominating place in the principal markets of the Lake States and has largely replaced southern pine at many consuming points in the Central States. An experienced lumberman has estimated that within the next decade the shortage of nearer timber will compel the Eastern and Central States to increase their annual consumption of western lumber by 11½ billion board feet.

The true index of timber depletion is not *quantity* but *availability*. It is shown partly in the cost of transporting the average thousand feet of lumber from mill to user. Prior to 1850, when the great bulk of our lumber was manufactured near the points of use, the transportation cost averaged less than $3 per thousand board feet. To-day it is probably $10. In another decade, at freight rates now prevailing, it will reach $15 per thousand feet. But aside from rising freight costs, the exhaustion of nearby supplies of timber imposes upon the consumer all the disadvantages of being dependent upon distant and restricted manufacturing regions. These include congestion of transportation, the effects of labor shortages and bad weather in limited regions, and a narrowed field of competition.

Not only is the quantity of timber left in the United States being used up much more rapidly than wood is being grown; the availability

of the remaining timber to the average consumer is steadily decreasing. The situation which confronts us now will be different only in degree if we allow the western forests also to be exhausted and are compelled to import most of our lumber from Siberia or South America.

TIMBER DEPLETION AND LUMBER PRICES.

The great leveler of lumber prices in our large markets has been competition between groups of sawmills in different timbered regions. As the most accessible forests in the region nearest to each important market have been cut out, prices have advanced, as a broad rule, only far enough to permit a flow of lumber from the most available timber in the next region in point of distance. The price level thus established has held in a broad way until further depletion in the nearer regions has forced an upward movement sufficient to bring in still more distant supplies of timber.

The wholesale prices on upper grades of softwood lumber in New York prior to 1865 were from $20 to $25 per thousand feet. The supply then came from mills in the same State or in Pennsylvania. A level of from $35 to $45 marked a period of 30 years or more prior to 1917 when most of the lumber came from the Lake States or the South. The abnormal conditions of 1919 initiated a new level of about $130 per thousand feet, with a considerable part of the material coming from the Pacific coast. The building grades of pine lumber cut near the Great Lakes retailed in the Middle West at $15 to $20 per thousand feet prior to 1900. Timber depletion in the Lake States forced these prices up to a level of $25 to $35 per thousand feet, when southern pine took over the market. And to-day the shortage of southern pine together with other factors has advanced prices to $80 or $85 per thousand feet, and western timber is becoming the staple of the region.

The depletion of timber has by no means been the sole cause of the recent wave of excessive lumber prices. Lumber production during the war was much less than normal owing to shortages of labor and equipment and embargoes on transportation, and a considerable part of the cut was taken by the Government for war purposes. At the same time the usual construction of dwellings and industrial structures and the use of lumber in many manufacturing industries was curtailed. Following the war these pent-up demands were released. They caught the lumber industry not only with stocks short and broken from war conditions but unable, on account of labor difficulties, lack of freight cars, and bad weather in important producing regions, to respond rapidly with increased production. The general causes affecting prices of most commodities, such as the expansion of credit accompanied by currency inflation and the wave of specu-

lation and extravagance, played their part. But an "auction" lumber market would have resulted in any event from the competition of buyers to obtain the limited and inadequate stocks available. The interregional competition which normally would have checked such extreme price movements was weakened not only by scant lumber stocks but by the restricted movement of lumber caused by shortages of cars.

Lumber prices indeed rose to unprecedented limits. In March, 1920, average mill prices in the South and West had advanced 300 per cent and more over those received in 1914. Average retail prices in the Middle West showed increases ranging from 150 to 200 per cent. The average advance on high-grade hardwoods in eastern wholesale markets was from 200 to 250 per cent, and even at these levels the demand was still unsatisfied. While the costs of manufacturing lumber at least doubled as compared with 1916, lumber prices have much more than doubled and have become wholly disproportionate to operating costs. The best thought in the industry has recognized that prices were too high; and some manufacturers have sought to stabilize the market. Prices, indeed, were so excessive in the spring of 1920 that buying was automatically checked.

There can be no doubt that timber depletion has contributed in no small measure to the high lumber prices of the past 18 months. The curtailment of the cut of lumber in many regions due to the using up of their forests has not merely made the consumer pay more freight on his lumber. It has aggravated the effects of car shortages and of climatic and other factors causing temporary curtailment of output in the regions which still support a large lumber industry. And it has restricted opportunity for competition and thereby increased the opportunity of the manufacturer or dealer to auction his lumber stocks for higher prices. The leveling influence of competition between the forest regions east of the Great Plains is fast disappearing. This is at least one reason why lumber consumers in the Ohio Valley are in some instances paying 50 per cent more than consumers of the same material in Oregon, over and above the intervening freight charges.

Our remaining timber is so localized that its availability to the average user of wood, and therefore its national utility, is greatly reduced. Particularly does such a restricted distribution of the remaining forests assume a serious national aspect in the face of such transportation congestion and inadequate transport facilities as the United States is now experiencing. Had the war been fought 40 years ago and brought the same aftermath, there can be no doubt that the presence of extensive lumber manufacturing industries at that time in half a dozen eastern forest regions would, by the very extent of regional competition and the wide distribution of the trans-

portation load, have afforded a curb on the upward movement of lumber prices which did not exist in 1919.

The experience of the last two years has been a sharp lesson to the people of the United States. Lumber shortages and high prices have seriously affected almost our entire population. The country is short many hundred thousand homes and the cost of lumber fairly precludes building by the average citizen. It has checked the development of agricultural lands and needed improvements on farms. Many industries have been unable to secure their supplies of timber at any price. The output of several entire industries has been reduced as much as 50 per cent.

Doubtless these extreme conditions will be relieved in no great length of time and more moderate prices will prevail. The outstanding fact remains, however, that lumber price levels higher than those existing before the war must be expected because of the depletion, or approaching depletion, of our forest regions east of the Great Plains. The scarcity of forest products of high quality cut from old growth timber will not be readily or quickly overcome. The shortage of certain materials like high-grade hardwoods is a permanent menace to many of our most essential manufactures. Forest depletion is going steadily on, unchecked. It must lead inevitably to rising price levels under normal conditions. It will contribute to sudden and excessive increases in lumber prices in any future transportation, labor, or other crisis.

TIMBER DEPLETION AND CONCENTRATION OF OWNERSHIP.

The concentration of timber ownership has not changed materially since the exhaustive report made upon this subject by the Bureau of Corporations in 1910. One-half of the privately owned timber in the United States is held by approximately 250 large owners, the ownership of the remaining timber being very widely distributed. The tendency toward the acquisition and speculative holding of timber beyond operating requirements has been checked and the present tendency is toward manufacture in connection with large timber holdings. At the same time the lumber industry, particularly in the western States, is going through a partial reorganization into larger operating and marketing groups. In this there is a tendency for small mills to disappear and small timber holdings to be blocked into larger ones adapted to extensive lumber manufacture. While there are still a large number of individual timber owners and of sawmills operating as separate units, the larger interests are acquiring a more dominant place in lumber manufacture in the West. It is to be expected that these large interests or groups will maintain, as time goes on, a fairly constant supply of timber for their manufacturing plants by acquiring smaller holdings. No information is at hand

which would justify a conclusion that monopolistic conditions on any general scale have grown out of this situation. There are many instances to the contrary. On the other hand, the degree of control of the timber remaining in the United States exercised by a comparatively small number of large interests will steadily increase as timber depletion continues, approaching a natural monopoly in character, and this control will extend particularly to the diminishing supply of high-grade material.

THE ANSWER—A NATIONAL FOREST POLICY.

IDLE FOREST LAND.

The depletion of timber in the United States has not resulted primarily from the use of our forests, but from their devastation. The kernel of the problem lies in the enormous areas of forest land which are not producing the timber crops that they should. There are 326 million acres of cut-over timber lands bearing no saw timber. Their condition ranges from complete devastation through various stages of partial restocking or restocking with trees of inferior quality, to relatively limited areas which are producing timber at or near their full capacity. On 81 million acres there is practically no forest growth. This is the result of forest fires and of methods of cutting which destroy or prevent new timber growth. There were 27,000 recorded forest fires in 1919, buring a total of 8¼ million acres. During the preceding year, 25,000 fires burned over 10½ million acres of forest land. An additional large acreage was burned each year, of which no record could be obtained.

The area of idle or largely idle land is being increased by from 3 to 4 million acres annually as the cutting and burning of forests continue. The enormous area of forest land in the United States not required for any other economic use, estimated at 463 million acres, would provide an ample supply of wood if it were kept productive. Depletion has resulted, not from using our timber resources, but from failure to use our timber-growing land.

Nor does this situation exist simply in the less developed and thinly settled regions of the country. The State of Massachusetts, as a typical example, contains denuded forest lands, within a stone's throw of her dense population and highly developed industries, which have been estimated at 1 million acres and which are largely idle as far as growing wood of economic value is concerned.

CONCERTED ACTION TO STOP FOREST DEVASTATION.

A remedy for this appalling waste must be found in a concerted effort to stop the devastation of our remaining forests and to put our idle forest lands at work growing timber. It is inconceivable that the United States should forfeit the economic advantage of its enormous timber-growing resources, and that is should go on using up its

forests with no provision for growing more until wood products are priced on the basis of imported luxuries and their use is restricted to the lowest possible scale of civilized existence. The concerted action necessary to put an end to forest devastation must enlist the National Government, the respective States, and the landowner.

It is impracticable to nationalize all of the forest land in the country, or even the major portion of it. On the other hand, the results needed can not be attained if timber production is left to the initiative of the private owner of lands or is sought solely through compulsory regulation of private lands. Not only has the public very large interests at stake which justify an assumption of part of the burden; certain fundamental causes of forest devastation can be removed only by public action. Chief among these are the fire hazard of forest properties, particularly of growing forests, and a property tax system which discourgages or may prevent the landowner from engaging in the business of growing timber.

On the other hand, the public can not and should not do it all. A measure of responsibility rests upon the landowner, and should be recognized in equitable requirements as to the handling of his land. It is a case of the public and the private owner alike doing their part. Our policy must aim toward timber production on somewhat the same footing as in France or Scandinavia—as an established national practice. This calls for a core of public forests, public instruction and example, public encouragement in protection and taxation, and a responsibility recognized by forest owners to keep their lands productive.

This summary would not be complete without indicating the essential steps which should be taken to stop timber depletion. The plan here outlined is built up on the belief that the most rapid progress will be made by utilizing the recognized police powers of the several States to stop forest fires and bring about better handling of privately owned forest land. The equitable adjustment of timberland taxes in such ways as will promote timber production is a responsibility of the individual States. At the same time the national importance of stopping timber depletion calls for the taking of an active part by the Federal Government, particularly in aiding the forest activities of the States, standardizing technical practice in fire protection and forest renewal, and largely extending national acquisitions of forest land.

THE FEDERAL LEGISLATION NEEDED.

The Federal legislation needed may be summarized briefly as follows:

(1) Cooperation with States in Fire Protection and Forest Renewal.

Legislation is needed, as an extension of section 2 of the act of March 1, 1911 (Weeks law), which will enable the Forest Service to

assist the respective States in fire protection, methods of cutting forests, reforestation, and the classification of lands as between timber production and agriculture. It should carry an initial annual appropriation of not less than $1,000,000, expendable in cooperation with the States, with a proviso that the amount expended in any State during any year shall not exceed the expenditures of the State for the same purposes. The Secretary of Agriculture should be authorized, in making such expenditures, to require reasonable standards in the disposal of slashings, the protection of timbered and cut-over lands from fire, and the enforcement of equitable requirements in cutting or extracting forest products which he deems necessary to prevent forest devastation in the region concerned, and to withhold cooperation, in whole or in part, from States which do not comply with these standards in their legislative or administrative measures. Federal activities under this law should not be restricted to the watersheds of navigable streams but should embrace any class of forest lands in the cooperating States.

This law, greatly extending the very limited Federal aid now given to the States in fire protection, will enable the Forest Service to organize and carry forward a Nation-wide drive against the chief cause of devastation—forest fires; and to secure the adoption of such other measures as may be needed in particular forest regions to stop denudation. It will also aid States and private owners in restocking lands already denuded, where tree growth will not come back of itself.

(2) The Extension and Consolidation of Federal Forest Holdings.

Legislation is needed, in part as an extension of section 1 of the act of March 1, 1911 (Weeks law), which will permit the rapid enlargement of the National Forests and the consolidation of existing Forest units for more effective administration. This legislation should:

(A) Continue the purchase of forest or cut-over lands, as initiated under the Weeks Act, with annual appropriations of at least $2,000,000.

(B) Authorize the Secretary of Agriculture to exchange National Forest land, timber, or transferable timber certificates for private timbered or cut-over land within or adjoining existing National Forests.

(C) Withhold from any form of alienation, except under the mineral laws, all lands now in Government ownership or control but not embraced in National Forests or National Parks, including canceled patents or grants, unreserved public lands, and Indian and

military reservations, which are valuable chiefly for the production of timber or protection of watersheds, and all lands of similar character hereafter revested in or acquired by the United States; and authorize the President upon recommendation of the National Forest Reservation Commission, or otherwise, to incorporate such lands in National Forests.

About a fifth of the forest lands in the United States are now publicly owned. One of the most direct and effective means of arresting devastation and offsetting the dangers arising from concentration of timber in private ownership is the extension of publicly owned forests. It is, under present conditions, the only effective means for overcoming the depletion of old-growth timber of high quality and for restocking many denuded areas which require planting.

The public should own a half of the timber-growing land in the United States, well distributed through all the principal forest regions. Every encouragement should be given to the States and to municipalities to acquire forest land, but the Federal Government must take the lead. In all Federal acquisitions, there must be an equitable compensation to communities for the tax returns of which they are deprived.

Appropriations for the purchase of forest lands should be used: First, to complete the program laid out for the protection of the watersheds of navigable streams under the Weeks Act, through acquiring about one million acres in New England and about five million acres in the Southern Appalachians; and second, to acquire cut-over land not necessarily upon important watersheds but distributed through all the principal forest regions where areas suitable for Federal management can be obtained. Much desirable timber-growing land in the vicinity of existing National Forests can be acquired by exchange for National Forest timber or timber certificates; and the administration of the National Forests will be improved and simplified through the consolidation of mingled public and private lands. As part of this policy, it is of the utmost importance that all timber-growing land and land valuable chiefly for watershed protection which the Government now owns or controls or in any manner may acquire shall be withheld from other disposition, with a view to its incorporation in National Forests. An effective administrative agency for carrying out this policy and for determining the best means of liquidating existing equities in such lands, as in the case of Indian Reservations, now exists in the National Forest Reservation Commission, representing three executive departments and both Houses of Congress, which passes upon purchases under the Weeks Act.

(3) The Reforestation of Denuded Federal Lands.

The current appropriations of the Forest Service should provide for the progressive reforestation of denuded lands in National Forests to be completed in not more than 20 years, with a yearly sum beginning at $500,000 and increasing to $1,000,000 as soon as the work can be organized on that scale.

The National Forests contain several million acres of forest land so severely burned that it can not be restocked without planting. To restore this land to timber production is an immediate Federal responsibility. Tree planting is most urgent on denuded watersheds from which water is obtained for power, irrigation, or municipal use. The work already done by the Forest Service has established methods, costs, and the limits of successful reforestation by artificial methods. This project can therefore be undertaken upon an assured basis of costs and results.

(4) A Study of Forest Taxation and Insurance.

Legislation carrying a moderate appropriation is needed which will authorize the Secretary of Agriculture to study the effects of the existing tax methods and practices upon forest devastation, to devise model laws on forest taxation, and to cooperate with State agencies in promoting their adoption. The same law should authorize a study of forest insurance looking to the assembling af authentic data on risks, practicable forms of insurance, the distribution of losses, etc.

The annual property tax is not adapted to lands employed in growing 50 or 75 year timber crops, and is an important cause of forest devastation. While land taxes rest with the States, the Federal Government can do much to further wise changes by an authoritative investigation and the formulation of equitable tax laws adapted to timber-growing land. While forest insurance must be developed by private initiative, investigation will be of material help in promoting this important aid to timber growing by private land owners.

(5) The Survey and Classification of Forest Resources.

Legislation is needed, with an appropriation of $3,000,000, to be available for from two to four years as the work may require, which will permit the Secretary of Agriculture to survey the forest resources of the United States, determine the present volume together with the present and possible production of each class of timber in every important forest region, and ascertain the requirements, as to quantity and character of timber, of each State and of every important wood-using industry. This survey should mark out, by broad lines timber-growing land from land suited to farm crops, to the end that

the forest growing resources of the United States may be fairly estimated and utilized in consideration of other land uses. Senate bill 3555, for the survey of pulpwoods, covers part of the comprehensive investigation necessary.

Exact information upon timber stands or growth and upon the areas of forest as distinct from agricultural land is not to be had. It is essential for developing a national forest policy designed to supply timber of the kinds and in the quantities and places needed by the country.

(6) Current Appropriations for Forest Research

The current appropriations of the Forest Service should be sufficient to maintain experiment stations in all the principal forested regions of the United States.

Further research is not necessary to determine the urgency of the action proposed. But a continuous study of the techical phases of reforestation in the principal timber regions, with their tremendous diversity of forests and methods of forestry practice, is essential to carry the national policy forward to the best results. Recent cuts in congressional appropriations will necessitate closing the four experiment stations hitherto established in the western States. Not only should those stations be restored, but provision should be made for additional experiment stations covering the other important forest regions of the country.

The survey of forest resources should be undertaken at once; but the essential facts as to timber depletion and its causes are so clear that no time should be lost in enacting the legislation recommended, particularly for cooperation with States and the extension of National Forests. The first point of general attack in arresting devastation is to stop forest fires. Hence a law permitting effective Federal and State action in this matter, as already outlined, is of the greatest urgency.

THE STATE LEGISLATION NEEDED.

The State legislation necessary to stop forest devastation will necessarily vary in different regions. Certain essential features of such laws, however, are common to all of the States containing large forest areas. The more important of them may be stated briefly as follows:

(1) Fire Prevention and Reforestation of Private Lands.

State laws should provide for the organized protection of all forest lands in the State, during periods of fire hazard, the protected areas to include all cut-over and unimproved land as well as bodies of timber. The protective system should include patrols during dry weather, lookout stations, fire breaks and roads where effective, and

organized fire-fighting forces. Every forest owner, large or small, should bear his proportionate share of its cost, about half of which may be properly borne by the State itself with the aid of the Federal Government. Police regulations for the control of fire during dry periods in connection with railroad or industrial operations near forest land, land clearing or slash disposal, hunting, etc., and for the control of incendiarism, form an essential feature of the protective system.

State laws should establish the responsibility of owners of forest land for complying with such equitable requirements as may be determined upon and promulgated by the proper State agency, dealing with precautions against forest fires, the disposal of slashings, methods of cutting timber or of extracting particular forest products, such as naval stores or pulpwood, and such other equitable requirements as the authorized State agency shall determine upon as necessary to prevent devastation. All timber and cut-over land in State or private ownership, which is not now required for other uses than timber growing, should be classed as "forest land" and placed under the control of the State forest organization, as far as it deems measures of control necessary to prevent devastation.

The agency in each State charged with the administration of the laws dealing with forest fires and devastation preferably should be a nonpartisan commission exercising wide latitude under the general authority of the State in determining equitable regulations applicable to various classes of forest lands. It should have authority, backed by penalties prescribed in the law, to enforce its regulations, subject to appeal by landowners to a judicial review. It should have authority to investigate any questions concerning the forests and forest industries of the State and to advise and assist forest owners in carrying out the most effective technical methods on their land. It should have authority and funds for growing planting stock and distributing it to landowners in the State at cost. It should have charge of the acquisition and administration of State forests, and of the classification of receded tax lands to segregate areas which should be incorporated in State forests. It should unify in one body all forest activities of the State. The make-up of this commission should represent the general public, its forest owners, its wood-using industries, and other interests or organizations concerned with timber production.

(2) State and Municipal Forests.

Effective progress in restoring the enormous areas of denuded land to timber growth can be made only by largely increasing public forests. Supplementing the policy of forest acquisition by the Federal Government, every State, including States in the prairie region,

should acquire forest lands or lands adapted to tree growth and provide systematically for the planting of such areas as will not otherwise restock with timber of valuable species. In the forest regions, State acquisition should be concentrated largely upon cut-over lands not needed for other purposes. As a part of this program, provision should be made for the classification of lands owned by the State or acquired through nonpayment of taxes or otherwise and for the segregation as permanent State forests of areas best suited for growing timber or protecting watersheds.

State laws should encourage the acquisition of forest lands by by municipalities, to the end that public forest ownership may be extended by any agencies capable of undertaking it. Public forest ownership not only is the most effective direct attack upon timber depletion; it serves other vital interests, particularly recreation, the protection of water sources, and the conservation of wild life.

Furthermore, publicly owned and administered forests widely distributed and setting standards of technical practice, will be of the greatest educational value and stimulus to the general adoption by private owners of methods which will keep their lands productive.

(3) Taxation of Forest Lands.

The adjustment of existing methods of taxation to the growing of timber crops is one of the most essential steps for arresting devastation. Every State containing forest areas should provide for an exhaustive study of the effects of existing methods and local practices of taxation upon forest devastation, to the end that needed revisions of tax laws may be drafted and considered by its legislature. The Nation-wide study of forest taxation proposed by the Federal Government would serve to assist and correlate the consideration of this problem in the respective States.

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